Sierra Video Systems.

DAH-138

HD/SD SDI
Distribution Amplifier

Owner's Manual

DAH-138-OM
Version: 1.1

DAH-138 • HD/SD SDI Reclocking Distribution Amplifier Owner's Manual

- Sierra Part Number: **DAH-138-OM**
- Document Version: **1.1**
- Printed in the United States.
- Last Author: KGM
- Printing Date: 11/23/2010 9:19:00 AM

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- sierravideo is a registered trademark of Sierra Video Systems.
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Important Regulatory and Safety Notices

Before using this product and any associated equipment, refer to the "Important Safety Instructions" listed below so as to avoid personnel injury and to prevent product damage.

Products may require specific equipment, and /or installation procedures be carried out to satisfy certain regulatory compliance requirements. Notices have been included in this publication to call attention to these specific requirements.

Symbol Meanings

This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage or injury to persons or equipment.

Warning

The symbol with the word **"Warning"** within the equipment manual indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

Caution

The symbol with the word "**Caution**" within the equipment manual indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Notice

The symbol with the word "**Notice**" within the equipment manual indicates a situation, which if not avoided, may result in major or minor equipment damage or a situation which could place the equipment in a non-compliant operating state.

ESD Susceptibility

This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.

Important Safety Instructions

Caution

This product is intended to be a component product of the openGear™ frame. Refer to the openGear™ frame Owner's Manual for important safety instructions regarding the proper installation and safe operation of the frame as well as it's component products.

Warning

Certain parts of this equipment namely the power supply area still present a safety hazard, with the power switch in the OFF position. To avoid electrical shock, disconnect all A/C power cords from the chassis' rear appliance connectors before servicing this area.

Warning

Service barriers within this product are intended to protect the operator and service personnel from hazardous voltages. For continued safety, replace all barriers after any servicing.

This product contains safety critical parts, which if incorrectly replaced may present a risk of fire or electrical shock. Components contained within the product's power supplies and power supply area, are not intended to be customer serviced and should be returned to the factory for repair.

To reduce the risk of fire, replacement fuses must be the same type and rating.

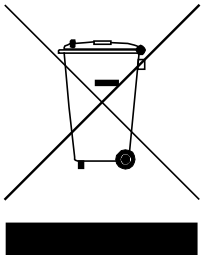
Only use attachments/accessories specified by the manufacturer.

Environmental Information

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Sierra Video Systems encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.



If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Sierra Video Systems for more information on the environmental performances of our products.

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Introduction

In This Chapter

This chapter includes the following sections:

- A Word of Thanks
- Overview
- Functional Block Diagram
- Supported Audio and Video Formats
- Documentation Terms

A Word of Thanks

Congratulations on choosing the openGear™ DAH-138 HD/SD Distribution Amplifier. The DAH-138 is part of a full line of modular conversion gear for broadcast TV environments. The Sierra Video Systems openGear™ line includes video decoders and encoders, audio embedders and de-embedders, distribution amplifiers, format converters, and much more. Sierra openGear™ modular conversion gear will meet your signal conversion and distribution needs now and well into the future.

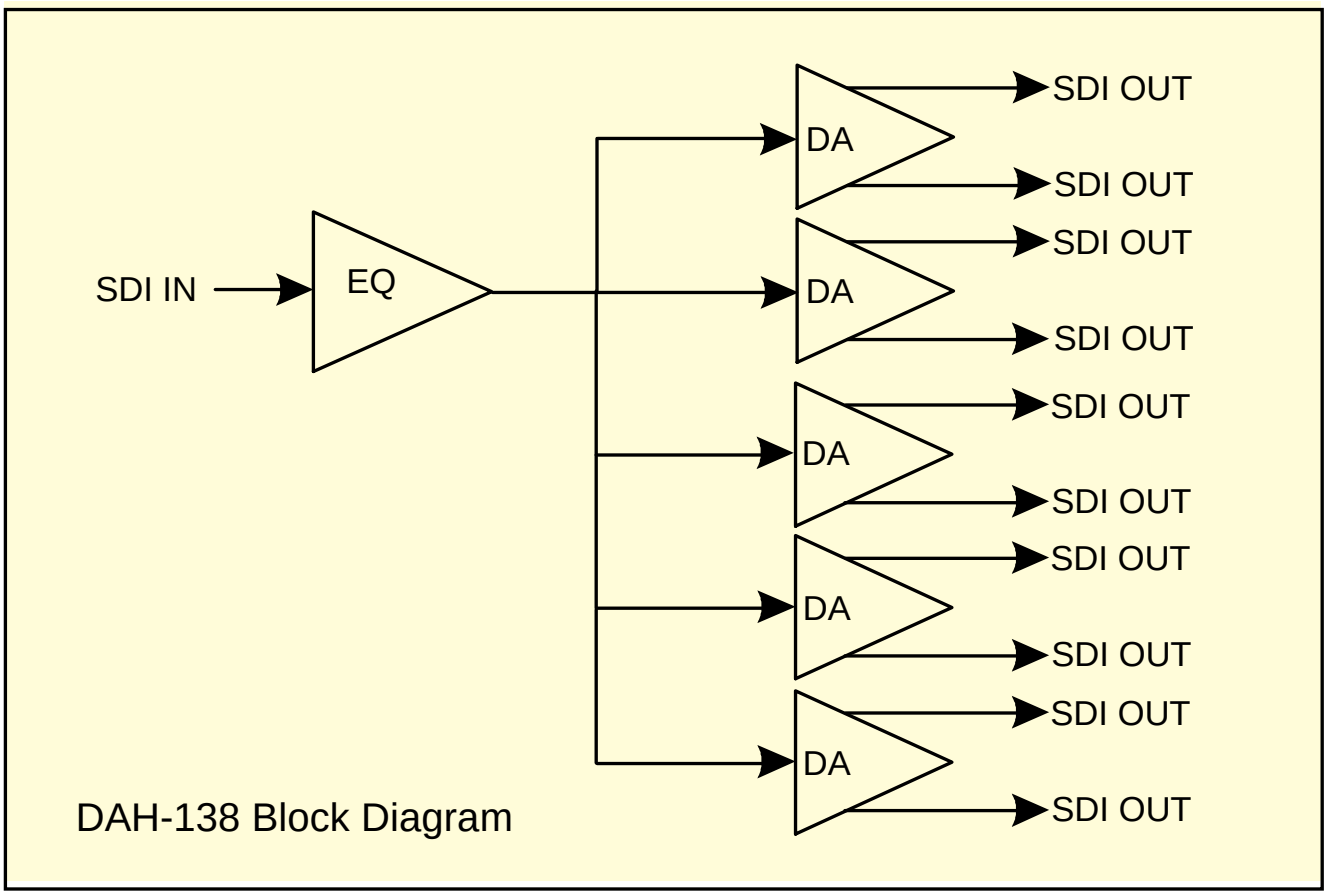
Should you have questions pertaining to the installation or operation of your DAH-138, please contact us at the numbers listed on the back cover of this manual. We are happy to help with any questions regarding this or any other openGear™ card.

Overview

The DAH-138 is a high quality HD/SD Distribution Amplifier. It is capable of equalizing and reclocking an SDI signal in HD or SD.

The DAH-138 can equalize an incoming SDI signal using up to 300m of cable at 270 Mbps and up to 120m of cable at 1.485 Gbps.

Functional Block Diagram



Supported Serial Rates

The DAH-138 will reclock 270 Mbps, 1.485 Gbps, and 3 Gbps signals. Signals of other rates will be equalized and distributed to the outputs, and the reclocker will be bypassed.

Documentation Terms

The following terms are used throughout this guide:

- "**Frame**" refers to the **8310** frame that houses the **DAH-138** card.
- "**Operator**" and "**User**" both refer to the person who uses the **DAH-138**.
- "**Board**" and "**Card**" all refer to the **DAH-138** card itself, including all components and switches.
- "**System**" and "**Video system**" refers to the mix of interconnected production and terminal equipment in which the **DAH-138** operates.

Installation and Setup

In This Chapter

This chapter includes the following sections:

- Static Discharge
- Unpacking
- Rear Module Installation (Optional)
- Board Installation
- BNC Connections
- Menu Structure
- Factory Defaults

Static Discharge

Whenever handling the card and other related equipment, please observe all static discharge precautions as described in the following note:

ESD Susceptibility

Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas, and when wearing synthetic fiber clothing. Always exercise proper grounding precautions when working on circuit boards and related equipment.

Unpacking

Unpack each card you received from the shipping container, and check the contents against the packing list to ensure that all items are included. If any items are missing or damaged, contact your sales representative or Sierra Video Systems directly.

Rear Module Installation (Optional)

If you are installing the card in a 8310-C-BNC or 8310-BNC frame (one with a 100 BNC rear module installed across the entire back plane), skip this section.

If you are installing the card into a slot with no rear module, you should have ordered and received a DAH-138-A Rear Module with your card. You will need to install it in your 8310 frame before you can connect cables.

Use the following steps to install the DAH-138-A in an 8310 openGear™ frame:

1. Refer to the openGear™ 8310 frame Owner's Manual, to ensure that the frame is properly installed according to instructions.
2. On the rear of the 8310, locate the card frame slot.
3. As shown in Figure 2, seat the bottom of the DAH-138-A in the seating slot at the base of the frame's back plane.

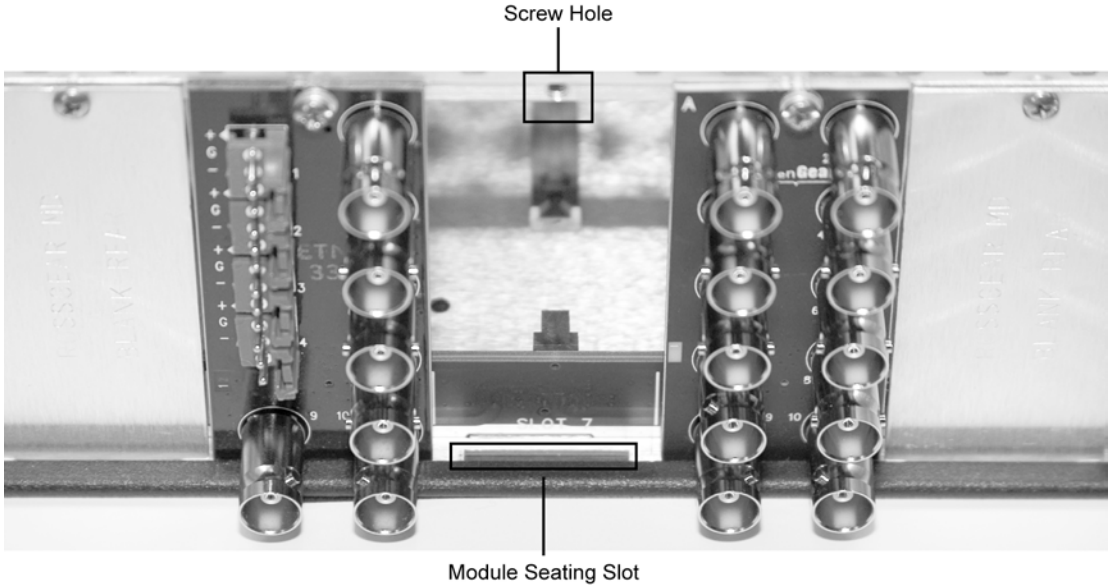


Figure 2. Rear Module Installation

4. Align the top hole of the DAH-138-A with the screw hole on the top edge of the 8310 back plane.
5. Using a Phillips driver and the supplied screw, fasten the DAH-138-A panel to the 8310 back plane. Do not over tighten.

This completes the procedure for installing the DAH-138-A in an 8310 openGear™ frame.

Board Installation

Use the following steps to install the card in the openGear™ 8310 frame:

1. Refer to the Owner's Manual of the openGear™ 8310 frame to ensure that the frame is properly installed according to instructions.

Warning

> Heat and power distribution requirements within a frame may dictate specific slot placement of cards. Cards with many heat-producing components should be arranged to avoid areas of excess heat build-up, particularly in frames using convection cooling.

2. After selecting the desired frame installation slot, hold the card by the edges and carefully align the card edges with the slots in the frame. Then, fully insert the card into the frame until the rear connection plugs are properly seated on the midplane and rear modules.

This completes the procedure for installing the card in the openGear™ 8310 frame.

Cable Connections

This section provides instructions for connecting cables to the installed BNC rear modules on the 8310 series frame backplane. Connect the input and output cables according to the following diagram. The input is internally terminated with 75 Ohms. It is not necessary to terminate unused outputs.

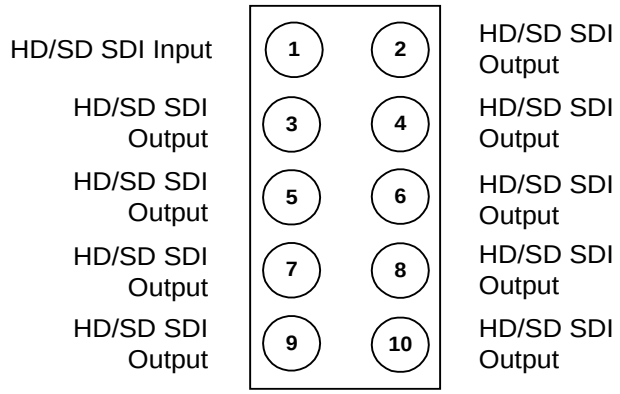


Figure 3. BNC Designations for the Card Rear Module DAH-138-A or 8310-RM-100

Card Control and Status

Card Status

The card has an LED that indicates whether Dashboard remote control is enabled, or if the switch bank controls the card. See description of switch 1 below.

The card also indicates the status of each of the outputs signal with the three banks of four LEDs labeled with the different supported formats (1080, 720, 625, 525). When the card has locked to a particular output format, that LED will be illuminated. When the card has not locked to a particular video format, the card will search all possible formats, and the lights will cycle rapidly.

Switches

The bank of eight switches (S1) on the front edge that controls the card is reserved for future use.

Remote Control

In This Chapter

This section provides a detailed explanation on using remote control functions with your card.

DashBoard Control System Software

The DashBoard Control System enables you to monitor and control openGear™ frames and controller cards from a computer. The DashBoard software and manual can be downloaded from the Sierra Video Systems. website.

Using the Menus

You must first install the DashBoard Control System software on your computer. Refer to the ***DashBoard User Manual*** for software installation procedures and for using the DashBoard interface.

The Menu System

The following table and sections describe the menus, items, and parameters available from the DashBoard Control System software for the card.

Table 3. DashBoard Menus

Menu	Item	Parameters	Description
Card Info (Read-only)	Product	DAH-138	
	Manufacturer	Sierra Video Systems.	
	Serial Number	############	Displays the Silicon Serial Number of the card.
	Software Release Number	###	The release number of the firmware in this card
	Software Build Date	###	The internal build number of this software
	Temperature		Temperature of on card sensor
	Input Current		Current consumed from +12V rail
	Input Voltage		Measured voltage of +12V rail
Lock Status	Lock Status		Describes the current input rate

Service Information

In This Chapter

This chapter includes the following sections:

- Troubleshooting Checklist
- Warranty and Repair Policy

Troubleshooting Checklist

Routine maintenance to this openGear™ product is not required. In the event of problems with your card, the following basic troubleshooting checklist may help identify the source of the problem. If the module still does not appear to be working properly after checking all possible causes, please contact your openGear™ products distributor, or the Technical Support department at the numbers listed under the "Contact Us" section at the end of this manual.

1. **Visual Review —** Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the module, the frame, and any associated peripheral equipment for signs of trouble.
2. **Power Check —** Check the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.
3. **Reseat the Card in the Frame** — Eject the card and reinsert it in the frame.
4. **Check Control Settings —** Refer to the Installation and Operation sections of the manual and verify all user-adjustable component settings.
5. **Input Signal Status —** Verify that source equipment is operating correctly and that a valid signal is being supplied.
6. **Output Signal Path —** Verify that destination equipment is operating correctly and receiving a valid signal.
7. **Module Exchange** — Exchanging a suspect module with a module that is known to be working correctly is an efficient method for localizing problems to individual modules.

Sierra openGear Warranty

A. General

Buyer assumes all responsibility for ascertaining the suitability of Sierra Video Systems (hereinafter "SVS") products for Buyer's intended use. No product sold by SVS is designed or manufactured for use in any manner or under any conditions other than those described in SVS's instruction manuals and other printed material for each particular product. If any product is used or applied in a manner or under conditions not specifically authorized by such written materials or if any product is used by unqualified or improperly trained personnel, Buyer agrees that SVS shall have no liability of any kind arising from such use, and Buyer agrees to indemnify and hold SVS harmless from any claims of third parties arising from such use, and Buyer shall provide SVS with counsel of SVS's choice to defend against such claims.

B. Limited Warranty

1. This warranty applies only to the original purchaser and is non-transferable. This warranty begins on the date of purchase and will be in effect for five (5) years for new equipment or and for three (3) years for "Factory Refurbished" equipment. Buyer must obtain a Return Material Authorization ("RMA") number from SVS prior to returning a product for repair. If, in SVS' sole discretion, the product is found to be defective during the term of this warranty, SVS will at its option: (a) provide free replacement parts, and/or (b) repair the unit at an SVS facility. During the warranty period, SVS will make every reasonable effort to support critical emergencies by supplying no-cost loan equipment while the defective unit is being repaired. SVS will provide replacement parts and/or factory service at no charge. Buyer bears the cost of shipping products returned to SVS under this warranty. SVS will bear the cost of shipping repaired products or replacement parts to the Buyer.

This limited warranty shall not apply to any of SVS's goods which have been altered or which shall have been subjected to misuse, mishandling, improper storage or negligence. The aforementioned provisions do not extend the original warranty period of any goods which have been replaced by SVS. This limited warranty shall not apply to any goods not of SVS's manufacture, Buyer to be entitled only to the warranty set forth in the original manufacturer's limited warranty.

THIS LIMITED WARRANTY IS EXPRESSED IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON SVS'S PART.

SVS neither assumes nor authorizes any other person to assume for SVS any other liabilities in connection with the sale of products of its own manufacture.

2. SVS's liability hereunder on any claim of any kind, except as set forth herein for any loss, injury to person or property or damage, shall in no case exceed the price allocable to the goods which give rise to such claim.

3. In no event shall SVS be liable for any damages or injuries to person or property if any goods do not meet the above limited warranty, including, without limitation, incidental expenses or consequential or special damages, except as set forth in such limited warranty. The foregoing states the exclusive remedy of Buyer and the exclusive liability of SVS for any breach of the foregoing limited warranty.

C. Cancellation

Except as provided in paragraph B immediately above, all sales are final, and Buyer may cancel this order or return products only upon written consent of SVS.

D. General

A. In the event of a breach of any of the terms hereof, the non-breaching party shall be entitled to recover all of its costs, fees, and expenses, including, without limitation, reasonable attorney's fees, from the breach party incurred as a result of such breach, regardless of whether or not a suit is actually filed to enforce the terms hereof.

B. The provision hereof shall be governed by the laws of the State of California (excluding its choice of law provisions).

C. The headings are for convenience only and do not limit or amplify the terms and provisions hereof.

D. In case any one or more of the provisions set forth herein shall be held to be invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

E. No waiver, alteration, or modification of any of the provisions hereof shall be binding unless in writing and signed by an authorized Officer of SVS.

NOTE:

All products returned to SVS for service must have prior approval. Return authorization requests may be obtained from your SVS dealer.

Ordering Information

DAH-138 and Related Products

Your **DAH-138 HD/SD SDI Distribution Amplifier** is a part of the openGear™ family of products. Sierra Video Systems offers a full line of openGear™ terminal equipment including distribution, conversion, monitoring, synchronizers, encoders, decoders, embedders, and de-embedders, as well as analog audio and video products.

Standard Equipment

- **DAH-138** HD/SD SDI Distribution Amplifier
- **DAH-138-OM** HD/SD SDI Distribution Amplifier Owner's Manual

Optional Equipment

- **DAH-138-OM** HD/SD SDI Distribution Amplifier Owner's Manual (additional Owner's Manual)
- **DAH-138-A** openGear™ Rear Module compatible with DAH-138 (10 BNC connector)
- **8310-C** Digital Products Frame and Power Supply with Cooling Fans (2RU, holds 10 cards)
- **8310-C-BNC** Digital Products Frame and Power Supply with fixed 100-BNC Rear Module and Cooling Fans. (2RU, holds 10 cards)
- **MFC-8310-N** Network Controller Card (Additional)

Contact Us

Contact Sierra Video Systems.

PHONE	**General Business Office and Technical Support**	530.478.1000
	Fax	530.478.1105
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	Sales Information	Sales@sierravideo.com
POSTAL SERVICE	**Sierra Video Systems.**	P.O. Box 2462 Grass Valley, CA 95945 USA

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